WHAT IS CLAIMED IS:

1   1.   A computer-implemented method for replicating a current file, said current file

2   having a current identifier and a plurality of data blocks associated therewith,

3   said method comprising:

4   receiving a request to replicate said current file;

5   in response to said request, creating a new file that is separate and distinct from

6   said current file, said new file having a new identifier associated

7   therewith; and

8   associating said new file with said plurality of data blocks such that both said

9   current file and said new file are associated with said plurality of data

10   blocks, thereby rendering said new file a replica of said current file.

1   2.   The method of Claim 1, wherein said current file is replicated without

2   duplicating any of said plurality of data blocks.

1   3.   The method of Claim 1, further comprising:

2   receiving a request to modify said new file; and

3   in response to said request to modify said new file, modifying said new file

4   without modifying said current file.

1   4.   The method of Claim 3, wherein modifying said new file comprises:

2   determining at least one of said plurality of data blocks to be a selected data

3   block to be modified;

4   storing the contents of said selected data block into an additional data block;

5   modifying said additional data block; and

6   associating said new file with said additional data block.

1   5.   The method of Claim 4, wherein modifying said new file further comprises:

2   de-associating said new file with said selected data block.

1   6.   The method of Claim 5, wherein said current file continues to be associated with

2   said selected data block, and wherein said current file is not associated with said

3   additional data block.

1   7.   The method of Claim 1, further comprising:

2   receiving a request to modify said current file; and

3   in response to said request to modify said current file, modifying said current file

4   without modifying said new file.

1 8.   The method of Claim 7, wherein modifying said current file comprises:

2   determining at least one of said plurality of data blocks to be a selected data

3   block to be modified;

4   storing the contents of said selected data block into an additional data block;

5   modifying said additional data block; and

6   associating said current file with said additional data block.

1 9.   The method of Claim 8, wherein modifying said current file further comprises:

2   de-associating said current file with said selected data block.

1 10.   The method of Claim 9, wherein said selected data block continues to be

2   associated with said new file, and wherein said additional data block is not

3   associated with said new file.

1 11.   The method of Claim 1, wherein the request to replicate said current file is made

2   by a user.

1 12.   The method of Claim 1, wherein the request to replicate said current file is made

2   by a computer program.

1 13.   The method of Claim 1, wherein said new identifier comprises a file descriptor,

2   and wherein said method further comprises:

3   linking, in response to a request from an entity, said file descriptor to a new file

4   name.

1   14.   The method of Claim 1, wherein each of said plurality of data blocks has a

2   reference value associated therewith, and wherein said method further

3   comprises:

4   updating the reference value of each of said plurality of data blocks to indicate

5   that said new file and said current file are associated with said plurality of

6   data blocks.

1   15.   The method of Claim 14, further comprising:

2   releasing each of said plurality of data blocks when each of said reference values

3   indicates that there are no files associated with said plurality of data

4   blocks.

1   16.   The method of Claim 1, further comprising:

2   receiving a request to modify said new file;

3   modifying said new file in response to said request to modify said new file,

4   wherein said new file is only accessible by an entity that sent said request

5   to modify said new file; and

6   upon completion of said modifying of said new file, associating said new file

7   with said current identifier, such that said new file replaces said current

8   file.

1   17.   The method of Claim 16, wherein, prior to associating said new file with said

2   current identifier, said current file continues to be capable of being accessed.

1   18. The method of Claim 16, wherein said current identifier is a filename, wherein

2   said new identifier is a file descriptor, and wherein associating said new file with

3   said filename further comprises:

4   linking, in response to a request from an entity, said file descriptor to said

5   filename.

1   19. An apparatus for replicating a current file, said current file having a current

2   identifier and a plurality of data blocks associated therewith, said apparatus

3   comprising:

4   a mechanism for receiving a request to replicate said current file;

5   a mechanism for creating, in response to said request, a new file that is separate

6   and distinct from said current file, said new file having a new identifier

7   associated therewith; and

8   a mechanism for associating said new file with said plurality of data blocks such

9   that both said current file and said new file are associated with said

10   plurality of data blocks, thereby rendering said new file a replica of said

11   current file.

1   20. The apparatus of Claim 19, wherein said current file is replicated without

2   duplicating any of said plurality of data blocks.

1 21. The apparatus of Claim 19, further comprising:

2 a mechanism for receiving a request to modify said new file; and

3 a mechanism for modifying said new file, in response to said request to modify

4 said new file, without modifying said current file.

1 22. The apparatus of Claim 21, wherein said mechanism for modifying said new file

2 comprises:

3 a mechanism for determining at least one of said plurality of data blocks to be a

4 selected data block to be modified;

5 a mechanism for storing the contents of said selected data block into an

6 additional data block;

7 a mechanism for modifying said additional data block; and

8 a mechanism for associating said new file with said additional data block.

1 23. The apparatus of Claim 22, wherein said mechanism for modifying said new file

2 further comprises:

3 a mechanism for de-associating said new file with said selected data block.

1 24. The apparatus of Claim 23, wherein said current file continues to be associated

2 with said selected data block, and wherein said current file is not associated with

3 said additional data block.

1 25. The apparatus of Claim 19, further comprising:

2   a mechanism for receiving a request to modify said current file; and

3   a mechanism for modifying said current file, in response to said request to

4   modify said current file, without modifying said new file.

1 26. The apparatus of Claim 25, wherein said mechanism for modifying said current

2   file comprises:

3   a mechanism for determining at least one of said plurality of data blocks to be a

4   selected data block to be modified;

5   a mechanism for storing the contents of said selected data block into an

6   additional data block;

7   a mechanism for modifying said additional data block; and

8   a mechanism for associating said current file with said additional data block.

1 27. The apparatus of Claim 26, wherein said mechanism for modifying said current

2   file further comprises:

3   a mechanism for de-associating said current file with said selected data block.

1 28. The apparatus of Claim 27, wherein said selected data block continues to be

2   associated with said new file, and wherein said additional data block is not

3   associated with said new file.

1 29. The apparatus of Claim 19, wherein the request to replicate said current file is

2   made by a user.

1   30.   The apparatus of Claim 19, wherein the request to replicate said current file is

2   made by a computer program.

1   31.   The apparatus of Claim 19, wherein said new identifier comprises a file

2   descriptor, and wherein said apparatus further comprises:

3   a mechanism for linking, in response to a request from an entity, said file

4   descriptor to a new file name.

1   32.   The apparatus of Claim 19, wherein each of said plurality of data blocks has a

2   reference value associated therewith, and wherein said apparatus further

3   comprises:

4   a mechanism for updating the reference value of each of said plurality of data

5   blocks to indicate that said new file and said current file are associated

6   with said plurality of data blocks.

1   33.   The apparatus of Claim 32, further comprising:

2   a mechanism for releasing each of said plurality of data blocks when each of said

3   reference values indicates that there are no files associated with said

4   plurality of data blocks.

1   34.   The apparatus of Claim 19, further comprising:

2   a mechanism for receiving a request to modify said new file;

3   a mechanism for modifying said new file in response to said request to modify

4   said new file, wherein said new file is only accessible by an entity that

5   sent said request to modify said new file; and

6   a mechanism for associating said new file with said current identifier upon

7   completion of said modifying of said new file, such that said new file

8   replaces said current file.

1   35.   The apparatus of Claim 34, wherein, prior to associating said new file with said

2   current identifier, said current file continues to be capable of being accessed.

1   36.   The apparatus of Claim 34, wherein said current identifier is a filename, wherein

2   said new identifier is a file descriptor, and wherein said mechanism for

3   associating said new file with said filename further comprises:

4   a mechanism for linking, in response to a request from an entity, said file

5   descriptor to said filename.

1   37.   A computer-readable medium having stored thereon instructions which, when

2   executed by one or more processors, cause the one or more processors to

3   replicate a current file, said current file having a current identifier and a plurality

4   of data blocks associated therewith, said computer-readable medium comprising:

5   instructions for causing one or more processors to receive a request to replicate

6   said current file;

7   instructions for causing one or more processors to create, in response to said

8   request, a new file that is separate and distinct from said current file, said

9   new file having a new identifier associated therewith; and

10   instructions for causing one or more processors to associate said new file with

11   said plurality of data blocks such that both said current file and said new

12   file are associated with said plurality of data blocks, thereby rendering

13   said new file a replica of said current file.

1   38.   The computer-readable medium of Claim 37, wherein said current file is

2   replicated without duplicating any of said plurality of data blocks.

1   39.   The computer-readable medium of Claim 37, further comprising:

2   instructions for causing one or more processors to receive a request to modify

3   said new file; and

4   instructions for causing one or more processors to modify said new file, in

5   response to said request to modify said new file, without modifying said

6   current file.

1 40. The computer-readable medium of Claim 39, wherein said instructions for

2 causing one or more processors to modify said new file comprise:

3 instructions for causing one or more processors to determine at least one of said

4 plurality of data blocks to be a selected data block to be modified;

5 instructions for causing one or more processors to store the contents of said

6 selected data block into an additional data block;

7 instructions for causing one or more processors to modify said additional data

8 block; and

9 instructions for causing one or more processors to associate said new file with

10 said additional data block.

1 41. The computer-readable medium of Claim 40, wherein the instructions for

2 causing one or more processors to modify said new file further comprise:

3 instructions for causing one or more processors to de-associate said new file with

4 said selected data block.

1 42. The computer-readable medium of Claim 41, wherein said current file continues

2 to be associated with said selected data block, and wherein said current file is not

3 associated with said additional data block.

1 43. The computer-readable medium of Claim 37, further comprising:

2   instructions for causing one or more processors to receive a request to modify

3   said current file; and

4   instructions for causing one or more processors to modify said current file, in

5   response to said request to modify said current file, without modifying

6   said new file.

1 44. The computer-readable medium of Claim 43, wherein said instructions for

2   causing one or more processors to modify said current file comprise:

3   instructions for causing one or more processors to determine at least one of said

4   plurality of data blocks to be a selected data block to be modified;

5   instructions for causing one or more processors to store the contents of said

6   selected data block into an additional data block;

7   instructions for causing one or more processors to modify said additional data

8   block; and

9   instructions for causing one or more processors to associate said current file with

10   said additional data block.

1 45. The computer-readable medium of Claim 44, wherein the instructions for

2   causing one or more processors to modify said current file further comprise:

3   instructions for causing one or more processors to de-associate said current file

4   with said selected data block.

1 46. The computer-readable medium of Claim 45, wherein said selected data block

2   continues to be associated with said new file, and wherein said additional data

3   block is not associated with said new file.

1 47. The computer-readable medium of Claim 37, wherein the request to replicate

2   said current file is made by a user.

1 48. The computer-readable medium of Claim 37, wherein the request to replicate

2   said current file is made by a computer program.

1 49. The computer-readable medium of Claim 37, wherein said new identifier

2   comprises a file descriptor, and wherein said computer-readable medium further

3   comprises:

4   instructions for causing one or more processors to link, in response to a request

5   from an entity, said file descriptor to a new file name.

1 50. The computer-readable medium of Claim 37, wherein each of said plurality of

2   data blocks has a reference value associated therewith, and wherein said

3   computer-readable medium further comprises:

4   instructions for causing one or more processors to update the reference value of

5   each of said plurality of data blocks to indicate that said new file and said

6   current file are associated with said plurality of data blocks.

1 51. The computer-readable medium of Claim 50, further comprising:

2   instructions for causing one or more processors to release each of said plurality

3   of data blocks when each of said reference values indicates that there are

4   no files associated with said plurality of data blocks.

1 52. The computer-readable medium of Claim 37, further comprising:

2   instructions for causing one or more processors to receive a request to modify

3   said new file;

4   instructions for causing one or more processors to modify said new file in

5   response to said request to modify said new file, wherein said new file is

6   only accessible by an entity that sent said request to modify said new file;

7   and

8   instructions for causing one or more processors to associate said new file with

9   said current identifier upon completion of said modifying of said new

10   file, such that said new file replaces said current file.

1 53. The computer-readable medium of Claim 52, wherein, prior to associating said

2   new file with said current identifier, said current file continues to be capable of

3   being accessed.

1 54. The computer-readable medium of Claim 52, wherein said current identifier is a

2 filename, wherein said new identifier is a file descriptor, and wherein said

3 instructions for causing one or more processors to associate said new file with

4 said filename further comprise:

5 instructions for causing one or more processors to link, in response to a request

6 from an entity, said file descriptor to said filename.

1 55. A computer-implemented method for linking a file descriptor to a file name

2 comprising:

3 receiving, from an entity, a request to link said file descriptor to said file name,

4 said file descriptor having a file associated therewith; and

5 associating said file name with said file in response to said request.

1 56. The method of Claim 55, wherein said entity is a user.

1 57. The method of Claim 55, wherein said entity is an application.

1 58. A computer-implemented method for modifying a current file associated with a

2   file name comprising:

3   receiving a request to modify said current file;

4   creating a new file, wherein said new file is a replica of said current file and

5   wherein said new file is associated with a file descriptor;

6   modifying said new file in response to said request to modify said current file,

7   wherein said new file is only accessible by an entity that sent said request

8   to modify said new file; and

9   linking said file descriptor to said file name, such that said new file replaces said

10   current file.

1 59. The method of Claim 58, wherein, prior to linking said file descriptor to said file

2   name, said current file continues to be capable of being accessed.

1 60. An apparatus for linking a file descriptor to a file name comprising:

2   a mechanism for receiving, from a entity, a request to link said file descriptor to

3   said file name, said file descriptor having a file associated therewith; and

4   a mechanism for associating said file name with said file in response to said

5   request.

1 61. The apparatus of Claim 60, wherein said entity is a user.

1 62. The apparatus of Claim 60, wherein said entity is an application.

1 63. An apparatus for modifying a current file associated with a file name

2 comprising:

3 a mechanism for receiving a request to modify said current file;

4 a mechanism for creating a new file, wherein said new file is a replica of said

5 current file and wherein said new file is associated with a file descriptor;

6 a mechanism for modifying said new file in response to said request to modify

7 said current file, wherein said new file is only accessible by an entity that

8 sent said request to modify said new file; and

9 a mechanism for linking said file descriptor to said file name, such that said new

10 file replaces said current file.

1 64. The method of Claim 63, wherein, prior to linking said file descriptor to said file

2 name, said current file continues to be capable of being accessed.

1 65. A computer-readable medium having stored thereon instructions which, when

2 executed by one or more processors, cause the one or more processors to link a

3 file descriptor to a file name, said computer-readable medium comprising:

4 instructions for causing one or more processors to receive, from a entity, a

5 request to link said file descriptor to said file name, said file descriptor

6 having a file associated therewith; and

7 instructions for causing one or more processors to associate said file name with

8 said file in response to said request.

1 66. The computer-readable medium of Claim 65, wherein said entity is a user.

1   67.   The computer-readable medium of Claim 65, wherein said entity is an

2   application.

1   68.   A computer-readable medium having stored thereon instructions which, when

2   executed by one or more processors, cause the one or more processors to modify

3   a current file associated with a file name, said computer-readable medium

4   comprising:

5   instructions for causing one or more processors to receive a request to modify

6   said current file;

7   instructions for causing one or more processors to create a new file, wherein said

8   new file is a replica of said current file and wherein said new file is

9   associated with a file descriptor;

10   instructions for causing one or more processors to modify said new file in

11   response to said request to modify said current file, wherein said new file

12   is only accessible by an entity that sent said request to modify said new

13   file; and

14   instructions for causing one or more processors to link said file descriptor to said

15   file name, such that said new file replaces said current file.

1   69.   The method of Claim 68, wherein, prior to causing one or more processors to

2   link said file descriptor to said file name, said current file continues to be

3   capable of being accessed.